REMARKS/ARGUMENTS

The foregoing amendments and these remarks are in response to the final Office Action, dated November 10, 2005. At the time of the Office Action, claims 18-34 were pending in the present application. Claim 31 and its dependent claims 32-34 were rejected under 35 U.S.C. § 112, ¶2. Claims 18-22 and 24-33 were rejected under 35 U.S.C. § 103(a). Claim 23 was indicated as being allowable if rewritten in independent form. Each of the rejections will be addressed in turn below.

35 U.S.C. § 112

Before discussing the art-based rejections, Applicant will first address the rejection of claim 31 under 35 U.S.C § 112, ¶2. With respect to claim 31, the Office Action notes that "the recitation of 'can flow successively' renders the claim indefinite, since it is not clear that under which condition the air stream can flow successively through the bearing gaps, and under which condition the air stream can flow unsuccessively through the bearing gaps."

Claim 31 has been amended to recite that the air stream flows successfully through the bearing gaps. Applicant respectfully submits that claim 31, as amended, overcomes the rejection under 35 U.S.C. § 112, ¶2.

Art-Based Rejections

Turning to the art-based rejections, claims 18-22 and 24-26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over German Patent No. DE 100 40 508 A1 ("Hassler") in view of U.S. Patent No. 5,310,311 ("Ardres").

According to the Office Action, Hassler discloses all of the elements recited in claim 18, except for "magnetic radial bearings, at least one axial bearings, each bearing having a bearing

plate, the gaps of the bearings, and a separate flow duct." However, the Office Action takes the position that it would have been obvious to one skilled in the art to have utilized these things, "as taught by Andres, to improve the efficiency of the Hassler device, since the use thereof would have provided the precisely support (sic) the shaft rotating at high speed in a high vibration, high shock and high temperature environment." Applicant respectfully disagrees.

As an initial matter, it is respectfully submitted that the Office Action gives Hassler too much credit. Not only does Hassler fail to disclose the elements noted in the Office Action, but it also fails to disclose any type of bearing system in the turbocharger. Further, Hassler only mentions that the bearing housing is cooled with the air (11) released from the charge-air cooler. There is no discussion whatsoever in Hassler that this air (11) is being supplied to the bearings themselves. Because Hassler does not disclose any bearings or bearing gaps, there is no reason to believe that the cooling air is being supplied to the bearing gaps, as recited in claim 18. Rather, this air supplied to cool only the housing.

Further, it is respectfully submitted that Hassler and Andres are not properly combinable. Again, Hassler only makes mention of a bearing housing; it does not disclose an specific bearing system. There is no teaching or suggestion in Hassler to modify the bearing system in Hassler to include magnetic bearings. Therefore, one skilled in the art would not be motivated to look to the art to find other bearing systems for supporting the shaft.

However, even if, for the sake of argument, Hassler and Andres can be combined, the combination does not teach each and every element recited in claim 18. For instance, claim 18 has been amended to recite that the radial bearings include a plurality of permanent magnets disposed in the gap between the bearing plates and the stator. Claim 18 further recites that the

plurality of permanent magnets are arranged in axially adjacent pairs and are polarized so as to attract one another.

In contrast, Andres only discloses electromagnets. The difference between permanent magnets and electromagnets in significant, particularly in the context of turbochargers. Unlike permanent magnets, the magnetic field of an electromagnet can be controlled by an outside influence (the flow of current). Permanent magnets do not rely upon outside influences to generate their field. Thus, in going from the electromagnets Andres to the permanent magnets of the present invention, the amount of control over the magnetic filed decreases. Therefore, one skilled in the art would not think to substitute the electromagnets of Andres with permanent magnets.

Moreover, permanent magnets can demagnetize in high temperature environments, such as the present application of turbochargers, and must be cooled. Therefore, one skilled in the art would not think to use permanent magnets as a substitute of the electromagnets of Andres, for fear of demagnetization. Therefore, the cited combination of Hassler and Andres actually teaches away from the invention recited in claim 18.

Andres also does not disclose the arrangement of the permanent magnets that is recited in claim 18. The arrangement of the electromagnets 42 for each radial bearing 40 can be seen in FIG. 5 of Andres. As shown, the electromagnets 42 are spaced circumferentially about the collar 44. It is clear that the electromagnets of Andres are not arranged in axially adjacent pairs, as recited in claim 18.

Further, Andres does not disclose magnets disposed in a gap formed between bearing plates and stators. Nor does Andres disclose a flow duct formed in the housing for supplying an

air stream to the bearing gaps. The cited portions of Andres – FIGS. 1-5, Col. 4, lines 9-23 – do not support the rejection.

For at least the reasons presented above, claim 18 of the present application is distinguishable over the cited art. As a result, claims 19-26, which depend from claim 18, are necessarily distinguishable as well.

Claim 27

According to the Office Action, "the method as claimed [in claims 27-33] would be inherent during the normal use and operation of the modified Hassler device as disclosed in the rejection of claims 18-26." Applicant respectfully disagrees. Claim 27 has been amended to recite radial bearings and at least one axial bearing (9). In addition, claim 27 recites that the radial bearings include a plurality of permanent magnets disposed in the air gap between the bearing plates and stators, and that the plurality of permanent magnets are arranged in axially adjacent pairs and are polarized so as to attract one another.

Therefore, for at least the reasons presented in connection with claim 18, claim 27 is distinguishable over the Hassler-Andres combination. As a result, dependent claims 28-33 are necessarily distinguishable over the cited art.

Conclusion

In light of the foregoing, Applicant respectfully submits that the Examiner's rejections have been overcome. Applicant respectfully requests reconsideration and withdrawal of the rejections of claims 18-22 and 24-34 and allowance pending claims 18-34. A notice to that effect is respectfully requested.

Respectfully submitted,

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Stephan A. Pendorf, USPTO Reg. No. 32,665
Mark M. Zylka, USPTO Reg No. 48,518
AKERMAN SENTERFITT
P.O. Box 3188
West Palm Beach, FL 33402-3188
Telephone: (561) 653-5000
Facsimile: (561) 659-6313